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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/082,108	02/26/2002	Antonio Serra	07040.0121	2684

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Finnegan, Henderson, Farabow,
Garrett & Dunner, L.L.P.
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Washington, DC 20005-3315

EXAMINER

SELLERS, ROBERT E

ART UNIT	PAPER NUMBER
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1712

DATE MAILED: 03/09/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/082,108

Applicant(s)

SERRA ET AL.

Examiner

Robert Sellers

Art Unit

1712

AS

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 February 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 87-108 and 133-160 is/are pending in the application.
- 4a) Of the above claim(s) 93, 97-108, 138-140 and 147-160 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 87-92, 94-96, 133-137 and 141-146 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☒ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 2/26/02.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

1. The election with traverse of Group III in the response filed February 17, 2004 is acknowledged. The traversal is on the grounds that the search and examination of the entire application, as amended, can be made without serious burden, particularly since both Groups III and IV are drawn to a tire and confined to identical claim 152. This is not found persuasive because Groups III and IV are classified within different subclasses of class 152. The additional components of a belt and tread band required in Group IV necessitates burdensome additional searches.

The requirement is still deemed proper and is therefore made FINAL.

2. Claims 98-108 and 147-160 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to nonelected inventions, there being no allowable generic or linking claim. Applicant timely traversed the restriction and election of species requirements in the response filed February 17, 2004. Claims 93 and 138-140 are withdrawn as being directed to non-elected species of epoxidized liquid organic compounds. Claim 97 is withdrawn as being directed to a non-elected species of elastomeric polymer containing carboxylic groups.

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The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 89, 135, 136, 138, 139, 142, 143 and 145 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for numerical ranges between the minimum and maximum values, does not reasonably provide enablement for numerical ranges including the minimum and maximum values as denoted by "greater than or equal to" and "less than or equal to." The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the invention commensurate in scope with these claims.

3. The lack of enablement for the individual claims and the support for only ranges indicated by the term "between" are outlined hereinbelow:

<u>Claim(s)</u>	<u>Type of Range</u>	<u>Enablement of "between"</u>
89	amount of filler	page 17, line 1 and original claim 5
135, 136	epoxide equivalent wt.	page 9, lines 12-15 and original claim 9
138, 139	molecular wt. of epoxidized diene	original claims 13 and 14, respectively
142, 143	molecular wt. of carboxylated elastomer	page 13, lines 3-5 and original claims 18 and 19, respectively
145	amount of epoxidized liquid	page 16, lines 24-33 and original claim 24

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 138, 139 142 and 143 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claims contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Claims 138, 139, 142 and 143 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

4. Claims 138 and 139 (supported by original claims 13 and 14), and claims 142 and 143 (substantiated by the specification on page 13, lines 3-5 and original claims 18 and 19) do not adequately describe and clearly define the average molecular weights of the epoxidized diene oligomer (claims 138 and 139) and elastomeric polymer containing carboxylic groups (claims 142 and 143) in the absence of the basis of the average molecular weight (e.g. weight average, number average).

5. The documentation of the molecular weight basis for a particular epoxidized diene oligomer such as the Poly BD[®] described on page 11, line 35 and shown in Table 1 on page 23, and a particular carboxylated elastomer such as the Nipol[®] EP (page 16, line 22 and page 23, Table 1) or Krynac[®] (page 16, line 23) along with its insertion into the appropriate sections of the specification and claims would address the problem.

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6. Claim 146 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The phrase "effective amount" used to define the content of condensation catalyst does not concisely denote the actual quantity of catalyst since the it cannot be ascertained what is achieved by the term "effective." More favorable consideration would be given to the language "an effective amount for increasing the crosslinking rate" as described on page 17, lines 27-28 of the specification.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 87-91, 94-96, 133-137 and 141-146 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Italian Patent No. 1,245,551.

7. The Italian patent (page 10 and page 16, Example 5) shows the vulcanization without sulfur of a blend of Krynac carboxylated butadiene-acrylic acid copolymer (deemed to be an example of the claimed carboxylated elastomeric polymer according to page 16, lines 19-23 of the specification) and epoxidized natural rubber (ENR-50, Epoxiprene 50TM) containing internal epoxy groups according to the reaction depicted on page 10. The assignee is Firestone which is a recognized manufacturer of tires.

8. The Italian patent meets the limitations of claims 87, 94-96, 144 and 145 with respect to 35 U.S.C. 102(b). A translation of the patent has been ordered to determine whether the limitations of claims 88-91, 133-137, 141-143 and 146 are covered by 35 U.S.C. 102(b) or 35 U.S.C. 103(a).

Claims 87-91, 94-96, 133-137 and 141-146 are rejected under 35 U.S.C. 103(a) as being unpatentable over French Patent No. 2,187,808.

9. The French patent espouses the preparation of a tire tread from the reaction product of a carboxy-terminated polybutadiene and a diepoxide such as an epoxidized polyolefin (page 2, line 22). Although the epoxidized polyolefin is not exemplified,

it would have been obvious to employ the epoxidized polyolefin as the diepoxide of the French patent based on its explicit recitation and equivalency with the exemplified bisphenol A diepoxide.

Claims 87-92, 94-96, 133-137 and 141-146 are rejected under 35 U.S.C. 103(a) as being unpatentable over Great Britain Patent No. 2,197,654, the Plastics and Rubber Processing and Applications article by Alex et al. and Japanese Patent No. 10-36563 in view of Italian Patent No. 1,245,551 and Sandstrom Patent No. 5,642,979.

10. British '654 (pages 14-15, Example 1) shows a crosslinked blend of a carboxylated butadiene-acrylonitrile elastomer (Krynac 211, within the realm of the elected species), an ionomer and the elected species of epoxidized soy oil or epoxidized natural rubber (page 8, lines 7-9) which "may be used to formulate articles such, for example, as hoses, belts, wire and cable insulation, footwear, mechanical goods and a wide variety of other rubber products (page 3, last line to page 4, line 2)."

11. Alex et al. (page 224, Table 1) shows a crosslinked mixture of epoxidized natural rubber (ENR-50 with internal epoxy groups according to the reaction exhibited on page 223), carboxylated nitrile-butadiene rubber (XNBR, Krynac 221) and silica.

12. The Japanese patent discloses the formulation of "oil-seals, O-rings, packing, gaskets and the like page 7, last paragraph)" from a sulfur-free crosslinked composition comprising a carboxyl group-bearing acrylonitrile-butadiene rubber,

a compound having 2 or more epoxy groups such as an epoxy-modified silicone oil of Formula 1 wherein X represents the presence of at least two internal epoxy groups (page 3, Formula 1 to page 4, line 4) and a tertiary amine.


13. The claimed use of the crosslinked blend as a tire is not recited.

The British patent, Alex et al. and the Japanese patent are open to the manufacture of "a wide variety of rubber products" from their carboxylated elastomer/epoxidized liquid organic compound blends.

14. The Italian patent is described hereinabove. It would have been obvious to prepare a tire from the crosslinked elastomeric products of the British patent, Alex et al. and Japanese patent in order to take advantage of the higher temperature use range, superior flexibility, lower tensile set and higher tear strength (British patent, page 12, last paragraph); to impart increased hardness and resilience and decreasing abrasion loss, compression set, heat build-up and dynamic set by molding at a temperature of 180°C (Alex et al., page 231, first column, lines 1-7); and to provide oil resistance (Japanese patent, page 7, last paragraph).

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Robert Sellers
Primary Examiner
Art Unit 1712

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3/3/04